

WHAT IS CLAIMED IS:

1. A method of packaging a group of articles into a container formed from a carton blank, the method comprising:

associating a carton blank with a group of articles, said carton blank having at
5 least one open portion and a plurality of bendable flaps;

providing a vertically oriented channel having at least one deflector assembly;
and

moving said associated carton blank and group vertically in said channel,
whereby said movement results in the bending of at least one of said flaps by said
10 deflector assembly such that said carton blank is at least partially assembled around
said group.

2. The method of claim 1, wherein the associating step involves inserting the
group into a partially erected carton blank.

3. The method of claim 1, further comprising the step of placing adhesive on
at least one of said flaps before the partial assembly of the associated carton blank in
said channel.

4. The method of claim 3, wherein said movement also results in maintaining
said flaps in a bent position until said adhesive sets.

5. The method of claim 1, wherein said moving step involves moving said
associated carton blank and group vertically downwardly within said channel.

6. The method of claim 1, further comprising the step of providing a ram to assist in moving said associated carton blank and group vertically along said channel.

7. The method of claim 1, wherein said deflector assembly comprises at least one of a plow assembly, a roller, a finger and a pressure saddle.

8. The method of claim 1, wherein said channel is provided with a plurality of deflector assemblies.

9. The method of claim 1, further comprising the step of providing pressure to one or more of said flaps as the associated carton blank and group moves along said channel.

10. The method of claim 9, wherein said pressure is applied by one or more vertically elongated guide members.

11. An apparatus for packaging a group of articles in a container formed from a carton blank, the apparatus comprising:

a vertical channel having first and second ends disposed along a substantially vertical longitudinal axis, the first end comprising an entrance to said channel and the
5 second end comprising an exit from said channel, said entrance being configured to receive a carton blank associated with a group of articles, the carton blank having a plurality of bendable flaps; and

a deflector assembly provided along the channel, the deflector assembly operative to bend at least one of said flaps as the associated carton blank and group

10 are moved along the vertical channel, whereby said bending results in at least partial assembly of said carton blank around said group.

12. The apparatus of claim 11, wherein the deflector assembly comprises at least one of a plow assembly, a roller, a finger, and a pressure saddle.

13. The apparatus of claim 11, wherein said channel further comprises at least two levels being vertically spaced from each other along the longitudinal axis, each level being provided with a deflector assembly.

14. A system for packaging a group of articles into a container formed from a carton blank, the system comprising:

an article grouping apparatus operative to receive articles and to arrange the articles into a predetermined group;

5 an associating apparatus operative to associate a carton blank with the group of articles, the carton blank having a plurality of bendable flaps; and

a vertical sleeve sealer apparatus comprising a vertical channel and at least one deflector assembly associated with the channel, the channel having first and second ends disposed along a substantially vertical longitudinal axis, the first end comprising
10 an entrance to said channel and the second end comprising an exit from said channel, said entrance being configured to receive the associated carton blank and group from the associating apparatus, said deflector assembly operative to bend at least one of said flaps as the associated carton blank and group are moved along the vertical

channel, whereby said bending results in at least partial assembly of said carton blank
15 around said group.

15. The system of claim 14, further comprising a feed conveyor configured to provide the articles to the article grouping apparatus.

16. The system of claim 15, wherein the article grouping apparatus comprises a piston being operative to help arrange the articles into the group by displacing selected articles from the feed conveyor.

17. The system of claim 14, wherein the associating apparatus comprises a vacuum placement system.

18. The system of claim 14, wherein said at least one deflector assembly comprises at least one of a plow assembly, a roller, a finger and a pressure saddle.

19. The system of claim 14, further comprising an alignment apparatus operative to align the articles before the articles are provided to the article grouping apparatus.

20. The system of claim 14, further comprising an exit conveyor located adjacent to said exit and configured to receive the associated carton blank and group from the vertical sleeve sealer apparatus.

21. The apparatus of claim 14, wherein said channel further comprises at least two levels being vertically spaced from each other along the longitudinal axis, each level being provided with a deflector assembly.

22. The system of claim 14, further comprising at least one of a platform, a carton wrapping apparatus, a palletizer, and a pallet wrapping apparatus.

23. The system of claim 14, further comprising a control system configured to operate the vertical sleeve sealer apparatus and one or more of said article grouping and associating apparatuses.

24. A plow assembly for an apparatus for packaging a group of articles in a container formed from a carton blank, the plow assembly operative to partially assemble a carton blank around an associated group of articles as the associated carton blank and group are moved vertically through a vertical channel of the
5 apparatus, the plow assembly comprising:

at least one mounting structure that is adapted to interface a vertical sleeve sealer apparatus;

at least one drafted portion being operative to contact and bend one or more flaps of a carton blank being moved through a channel of a vertical sleeve sealer
10 apparatus; and

at least one contact surface being operative to at least temporarily maintain a bent position of one or more flaps of a carton blank being moved through a channel of a vertical sleeve sealer apparatus.

25. The plow assembly of claim 24 being configured to be removably associated with the channel.